

Appl. 10/077,391

Amdt. dated 23 December 2003

Reply to Office action of 25 Sep 2003

CLAIMS:

1. (CURRENTLY AMENDED) A method of continuously casting steel strip comprising:

(a) providing a chilled casting surface with a texture formed by a random distribution pattern of discrete projections;

(b) contracting the chilled casting surface with a casting pool of molten steel having a manganese content of at least 0.55% by weight and a silicon content in the range 0.1 to 0.35% by weight to cause solidification of steel from the casting pool onto the casting surface as a solidified shell; and

(c) separating the solid shell from the casting surface in a solidified strip.

2. (ORIGINAL) A method as claimed in claim 1, wherein the steel has a carbon content of less than 0.07% by weight.

3. (ORIGINAL) A method as claimed in claim 1, wherein at least some of said discrete projections have an average surface distribution of between 5 and 200 peaks per mm².

4. (ORIGINAL) A method as claimed in claim 1, wherein said discrete projections have an average height of at least 10 microns.

5. (ORIGINAL) A method as claimed in claim 4, wherein the average height of the discrete projections is at least 20 microns.

6. (ORIGINAL) A method as claimed in claim 1, comprising the additional step of the strip moving away from the casting pool at a speed of at least 60 meters per minute.

7. (ORIGINAL) A method as claimed in claim 6, wherein the strip is moved away from the casting pool at a speed in the range 75 meters per minute.

8. (ORIGINAL) A method as claimed in claim 1, wherein the manganese content of the steel is in the range 0.55 to 0.9% by weight.

9. (CURRENTLY AMENDED) A method of continuously casting steel strip comprising:

(a) forming a pair of casting rolls having casting surface being textured by a random distribution pattern of discrete projections

(b) introducing molten steel having a manganese content of at least 0.55% by weight and a silicon content in the range of 0.1 to 0.35% by weight into a nip between said

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pair of casting rolls that are chilled to form a casting pool of the molten steel supported on the casting surfaces of the rolls immediately above the nip; and

(c) rotating the rolls to cause solidified steel shells forming on the casting surfaces in contact with the casting pool to be brought together into a solidified steel strip delivered downwardly from the nip.

10. (ORIGINAL) A method as claimed in claim 9, wherein said discrete projections have an average surface distribution of between 5 and 200 peaks per mm² and an average height of at least 10 microns.

11. (CURRENTLY AMENDED) A method as claimed in claim 9, wherein each casting surface is defined by a grit blasted substrate covered by a protective coating such that the casting surface shows the random distribution texture of discrete projections.

12. (ORIGINAL) A method as claimed in claim 11, wherein the protective coating is an electroplated metal coating.

13. (ORIGINAL) A method as claimed in claim 12, wherein the substrate is copper and the plated coating is of chromium.

14. (ORIGINAL) A method as claimed in claim 9, wherein each casting surface is a grit blasted surface.

15. (ORIGINAL) A method as claimed in claim 14, wherein the grit blasted surface is formed of nickel.

16. (CURRENTLY AMENDED) A method as claimed in claim 9, wherein each casting surface is defined by a coating deposited onto a substrate to produce the random distribution patterned texture of that surface.

17. (ORIGINAL) A method as claimed in claim 16, wherein the coating is formed by chemical deposition.

18. (ORIGINAL) A method as claimed in claim 16, wherein the coating is formed by electrodeposition.

19. (ORIGINAL) A method as claimed in claim 16, wherein the coating is formed of a material which has a low affinity for the oxidation products in the molten steel such that the molten steel has greater affinity for the coating material and wets the coating in preference to said oxidation products.

20. (ORIGINAL) A method as claimed in claim 16, wherein the coating is formed of an alloy of nickel, chromium and molybdenum.

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21. (ORIGINAL) A method as claimed in claim 16, wherein the coating is formed of an alloy of nickel, molybdenum and cobalt.